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SOUTHERN CALIFORNIA EDISON

POWER BULLETIN

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Electric Vehicles and Charging: Looking Forward and Getting Ready

As the number of plug-in hybrid and battery electric vehicles on Southern California roads grows—with more than 20 automaker models scheduled for production in the next few years—businesses and multi-unit sites increasingly are looking at installing charging stations for fleet, employee, customer or tenant use.

Southern California Edison (SCE) can help you prepare to use electric vehicles and/or charging stations if you choose to add these to your business model. Providing safe, reliable and efficient power is SCE's primary responsibility. We're committed to ensuring the necessary support for customers' use of electric vehicles, as we do with all other electric loads.

SCE can help with infrastructure readiness solutions to make the charging installation process as simple and convenient as possible. We want to make sure customers can safely and reliably add charging stations without impacting day-to-day operations, while also managing costs. Specifically, SCE can:

- Provide electric vehicle education, explain the charging station installation process and help guide you toward solutions that meet your business needs.

- Perform a customized rate analysis to provide you with options on potential electric vehicle charging costs, so you have complete information to choose an eligible rate that works for you.
- Evaluate your electric service and advise you about electrical service requirements to help you seamlessly integrate charging into your daily operations.

Rate Choices

SCE currently offers three rate options for electric vehicle charging. Where possible, we work with our customers to encourage off-peak charging, when electricity demand and costs are lower. Off-peak charging can minimize strain on the electric system, particularly during hot summer afternoons when electricity use climbs.

In one rate option, existing nonresidential load can be combined with new electric vehicle charging load on a single meter. In this case, energy is priced on the existing customer rate.

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If your electric vehicle charging load is above 500 kilowatts (kW), it must be metered with existing nonresidential load on the TOU-8 rate.

Available options also include two nonresidential rates, specifically for electric vehicle charging, that potentially can save your business money. Customers charging vehicles under these two separately metered rates, TOU-EV-3 (for charging demand up to 20 kW), and TOU-EV-4 (for demand over 20 kW and below 500 kW), pay significantly less per kilowatt-hour off-peak than they do on-peak.

With current requirements, vehicles charged under these rates must be owned by the service account customer of record. SCE has requested that the California Public Utilities Commission remove this requirement, and is waiting for a final decision.

Charging Options

There are three options for charging electric vehicles. As listed here, the options offer increasingly shorter vehicle charging times. Higher voltage levels typically require more electrical work to accommodate charging installations.

- **Level I Charging:** Vehicles can charge on a typical 120-volt outlet. Upgrades or modifications to the property's electrical infrastructure may not be required as long as a standard outlet is available near the vehicle and a safe connection can be made.
- **Level II Charging:** This level requires a 240-volt rated charging unit and may also involve making changes to the property's electric panel or circuits.
- **DC Fast Charging:** Some business customers may want to explore this "fast" method of charging, which requires a 480-volt connection. Use of this charging method likely will require more significant electrical infrastructure improvements.

Comparison Chart for Charging Units

	Voltage	Full Charge	
		Battery Electric Vehicle	Plug-In Hybrid Electric Vehicle
Level I Charging	120 volts	12 – 18 hours*	6 – 8 hours*
Level II Charging	240 volts	4 – 6 hours*	3 – 4 hours*
DC Fast Charging	480 volts or higher	10 – 30 minutes (80% full charge)*	5 – 20 minutes (80% full charge)*

* Charging times may vary according to make and model of the vehicle as well as battery state of charge.

Charging Installation Steps

To prepare your site for charging, follow these steps, and contact SCE if you need additional assistance:

1. Research charging equipment options and equipment installers/electrical contractors, and learn about the electric vehicle charging station installation process by contacting SCE.
2. Create a charging plan, considering issues like number and type of charging stations needed, preferred locations and expected charging time periods. (SCE can provide a charging plan checklist to assist you with this.)
3. Contact SCE to discuss your charging plan, including rate and metering options, and if you would like a customized rate analysis to help you determine the best eligible rate option for your business.
4. Obtain estimates from electrical contractors.
5. Finalize your charging equipment/installation costs and timelines, and contact SCE to move forward with the eligible rate option that meets your charging needs.

SCE also can provide other assistance, such as directing you to resources on external funding opportunities and incentives for alternative fuels and electric vehicles. As the electric vehicle market further develops, SCE will continue to work closely with local officials, auto and equipment manufacturers, vendors and installers in SCE's service territory to provide a coordinated charging installation process that supports our customers' charging plans.

If you're considering adding electric vehicles and/or charging stations, or have any questions, contact your SCE account representative for assistance.



As more business customers look to use electric vehicles and/or charging stations, SCE can assist with infrastructure readiness solutions that ensure safe and reliable charging and help make the charging installation process as simple and convenient as possible.

Mark Your Calendars for SCE's Annual Water Conferences

SCE will host two free Water Conferences in late September at our Energy Education Centers to help water and wastewater agencies learn more about how to save energy, money and the environment.

The 18th annual conference at SCE's Energy Education Center – Irwindale will take place Sept. 26-28, with the general session on Sept. 26, followed by workshops and classes the next two days. The conference at the Energy Education Center – Tulare, including both general and breakout sessions, will be held on Sept. 27.

This year's events will bring in experts in the field to cover a number of key topics. The schedule for the event at the Energy Education Center – Irwindale currently includes sessions (subject to change) on:

- Supervisory Control and Data Acquisition (SCADA) systems,
- Motors and variable frequency drives,
- Pump plant efficiency improvements,
- SCE's free Tool Lending Library program,
- Power quality fundamentals,
- Outage communications for planned and unplanned power outages,
- The water-energy carbon footprint connection,
- Renewable self-generation for water and wastewater agencies, and more.

For the one-day conference at the Energy Education Center - Tulare, topics scheduled to be covered (also subject to change) include:

- Well rehabilitation,
- Blower efficiency,
- Pump testing demonstrations,
- SCE's free Tool Lending Library program,
- SCE's Demand Response and Real-Time Pricing programs,
- Renewable self-generation for water and wastewater agencies, and more.

To find out additional information about attending one of the Water Conferences, and to register, contact your SCE account representative or visit www.sce.com/workshops.

Go Back to School to Save Energy and Money

SCE's Energy Education Centers in Irwindale and Tulare offer workshops, classes and seminars year-round to help you make important energy management and energy efficiency choices. These educational resource centers use the latest technologies for teaching, and offer solutions to help your organization save energy, money and the environment.

For schedules (including of classes held at other locations) and to register, plus for a virtual tour of the Energy Education Center in Irwindale, visit www.sce.com/energycenters.